

## CLAIMS

1. A method of operating a pulse echo ranging system comprising a transducer assembly to provide transmission and reception of pulses of high frequency energy at plural substantially different frequencies, using signals received by the transducer assembly to generate an echo profile for signals received at at least a first of the frequencies, and utilizing the signal at another of the frequencies to enhance the recovery of data beyond that obtained from the first signal alone.
2. A method according to claim 1, wherein the high frequency energy is acoustic energy and one frequency is used to generate an echo profile, and a second frequency to insonify a radiating surface of the transducer assembly to render it self cleaning.
3. A method according to claim 1, wherein the received signals are used to generate an echo profile for signals received at two frequencies, and the profile combines data from the at least two signals.
4. A method according to claim 3, wherein the received signals are summed.
5. A method according to claim 3, wherein the received signals are differenced.
6. A method according to claim 3, wherein a signal received at a second frequency is used as a reference against which the first signal can be compared to detect echoes in the latter.
7. A pulse-echo ranging system including a control computer programmed to perform the method of claim 3.